

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	("6909397") or ("20050128123").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2005/09/14 14:29
L2	2692	((Motion or movement) same (sensing or sensor or detect or detecting or detection or detector)) and (Microwave or radar or doppler) and (Scan or scanned or scanning or scanner) and antenna	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/14 14:30
L3	163671	breathe or breath or breathing or respires or respiring or respiration or respiratory or ((exhale or exhaling) and (inhale or inhaling))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/14 14:31
L4	178	2 and 3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/14 14:31
L5	163671	breathe or breath or breathing or respires or respiring or respiration or respiratory or ((exhale or exhaling) and (inhale or inhaling))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/14 14:31
L6	178	2 and 5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/14 14:35
L7	237	digital adj shaft same (encode or encoding or encoder)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/14 14:31
L8	1	6 and 7	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/14 14:31

L9	3429	digital same shaft same (encode or encoding or encoder)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/14 14:32
L10	1	6 and 9	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/14 14:32
L11	150	6 and @ad<="20031212"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/14 14:58
L12	412	(342/22).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2005/09/14 14:46
L13	10	5 and 12	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/14 14:46
L14	2349	((342/22) or (342/28) or (342/114) or (342/115) or (342/160) or (342/162) or (600/534) or (340/554)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2005/09/14 14:57
L15	1670	14 and @ad<="20031212"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/14 14:58

## **SEARCH NOTES FOR EAST AND IEEE AND INSPEC AND IP.COM**

**SERIAL NUMBER**

10735478

### **EAST SEARCH**

EAST: search history attached

Search terms:

(Motion or movement) same (sensing or sensor or detect or detecting or detection or detector)

Microwave or radar or doppler

Scan or scanned or scanning or scanner

antenna

breathe or breath or breathing or respiration or respire or respiring or respiration or respiratory or ((exhale or exhaling) and (inhale or inhaling))

digital adj shaft same (encode or encoding or encoder)

### **IEEE SEARCH**

Search terms:

**(breathe or breath or breathing or respiration or respire or respiring or respiration or respiratory or exhale or exhaling or inhale or inhaling) and (motion or movement) and (sensing or sensor or detect or detecting or detection or detector) and (microwave or radar or doppler)**

- 1. Microprocessor-controlled automatic clutter-cancellation circuits for microwave systems to sense physiological movements remotely through the rubble**  
Chuang, H.; Chen, Y.; Chen, K.  
Instrumentation and Measurement Technology Conference, 1990. IMTC-90. Conference Record., 7th IEEE  
13-15 Feb 1990 Page(s):177 - 181

**2. Microwave system for the detection of trapped human beings**

Aggelopoulos, E.; Karabetsos, E.; Uzunoglu, N.; Constantinou, P.  
Industrial Electronics, 1995. ISIE '95., Proceedings of the IEEE International Symposium  
on  
Volume 1, 10-14 Jul1995 Page(s):187 - 192 vol.1

**3. Microwave life-detection systems for searching human subjects under earthquake  
rubble or behind barrier**

Kun-Mu Chen; Yong Huang; Jianping Zhang; Norman, A.  
Biomedical Engineering, IEEE Transactions on  
Volume 47, Issue 1, Jan 2000 Page(s):105 - 114

**4. Using modified fetal monitor and signal processing to detect fetal breathing  
movement**

Foulquiere, K.; Karlsson, B.; Vilbergsson, G.; Berson, M.  
Ultrasonics Symposium, 2000 IEEE  
Volume 2, Oct 2000 Page(s):1391 - 1394 vol.2

**5. A microwave radio for Doppler radar sensing of vital signs**

Droitcour, A.; Lubecke, V.; Jianshan Lin; Boric-Lubecke, O.  
Microwave Symposium Digest, 2001 IEEE MTT-S International  
Volume 1, 2001 Page(s):175 - 178 vol.1

**6. Survivor search radar system for persons trapped under earthquake rubble**

Arai, I.  
Microwave Conference, 2001. APMC 2001. 2001 Asia-Pacific  
2001 Page(s):663 - 668 vol.2

**7. 0.25 μm CMOS and BiCMOS single-chip direct-conversion Doppler radars for  
remote sensing of vital signs**

Droitcour, A.D.; Boric-Lubecke, O.; Lubecke, V.M.; Jianshan Lin  
Solid-State Circuits Conference, 2002. Digest of Technical Papers. ISSCC. 2002 IEEE  
International  
Volume 1, 2002 Page(s):348 - 349 vol.1

**8. 10 GHz Doppler radar sensing of respiration and heart movement**

Lubecke, O.B.; Ong, P.-W.; Lubecke, V.M.  
Bioengineering Conference, 2002. Proceedings of the IEEE 28th Annual Northeast  
2002 Page(s):55 - 56

**9. Range correlation effect on ISM band I/Q CMOS radar for non-contact vital signs  
sensing**

Droitcour, A.D.; Boric-Lubecke, O.; Lubecke, V.M.; Lin, J.; Kovacs, G.T.A.  
Microwave Symposium Digest, 2003 IEEE MTT-S International  
Volume 3, 8-13 June 2003 Page(s): 1945 - 1948 vol.3

**10. Wireless vital signal detection systems and its applications at 1.9GHz and 10GHz**

**[biomedical applications]**

Park, J.M.; Choi, D.H.; Park, S.O.

Antennas and Propagation Society International Symposium, 2003. IEEE

Volume 4, 22-27 June 2003 Page(s): 747 - 750 vol.4

**11. Range correlation and I/Q performance benefits in single-chip silicon Doppler radars for noncontact cardiopulmonary monitoring**

Droitcour, A.D.; Boric-Lubecke, O.; Lubecke, V.M.; Lin, J.; Kovacs, G.T.A.

Microwave Theory and Techniques, IEEE Transactions on

Volume 52, Issue 3, March 2004 Page(s): 838 - 848

**12. On the operation mechanism of the microwave sensor for measuring human heartbeats and respirations**

Yimin Yin; Jian Qian; Junfeng Lu; Yong Huang

Sensors, 2003. Proceedings of IEEE

Volume 1, 22-24 Oct. 2003 Page(s): 565 - 568 Vol. 1

**13. Non-invasive respiratory movement detection and monitoring of hidden humans using ultra wideband pulse radar**

Ossberger, G.; Buchegger, T.; Schimback, E.; Stelzer, A.; Weigel, R.

Ultra Wideband Systems, 2004. Joint with Conference on Ultrawideband Systems and Technologies. Joint UWST & IWUWBS. 2004 International Workshop on

18-21 May 2004 Page(s): 395 - 399

## INSPEC SEARCH

Search history:

No.	Database	Search term	Info added since	Results	
1	INZZ	(breathe OR breath OR breathing OR respire OR respiring OR respiration OR respiratory OR exhale OR exhaling OR inhale OR inhaling) AND (motion OR movement) AND (sensing OR sensor OR detect OR detecting OR detection OR detector) AND (microwave OR radar OR doppler)	unrestricted	27	<a href="#">show titles</a>

"RADAR flashlight for through the wall **detection** of humans", Greneker-E-F., Targets and Backgrounds: Characterization and Representation IV, Orlando, FL, USA, 13-15 April 1998. In: Proceedings-of-the-SPIE-The-International-Society-for-Optical-Engineering, vol.3375, p.280-5.

# IP.COM SEARCH

Search terms:

(breathe OR breath OR breathing OR respire OR respiring OR respiration OR respiratory OR exhale OR exhaling OR inhale OR inhaling) AND (motion OR movement) AND (sensing OR sensor OR detect OR detecting OR detection OR detector) AND (microwave OR radar OR doppler)

Result # 1 Relevance: 

HomeRadar: Occupant Location Display for the Home

02-Sep-2005 IPCOM000127574D English (United States)

This invention allows (e.g.) mom to keep track of where the kids and pets are in the home. UWB-RF wall-mounted radars are networked throughout the home using Powerline communications. Each UWB wall-mounted unit detects the location of occupants within its sensing range, ...

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Result # 2 Relevance: 

ANALOG FEEDBACK ECHO CANCELLER

2003-08-01 IPCOM000017302D English (United States)

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Result # 3 Relevance: 

A History of the Information Processing Techniques Office of the Defense Advanced Research Projects Agency

1992-10-01 IPCOM000127913D English (United States)

This report has been sponsored by the Computing Systems Technology Office and the Software and Intelligent Systems Technology Office of the Defense Advanced Research Projects Agency, and has been prepared under NASA-Ames Research Grant NAG 2-532, subcontract USC/PO 473764. ...

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Result # 4 Relevance: 

Mechanism for child safety - motor vehicle back seat warning

2005-08-22 IPCOM000127315D English (United States)

This disclosure presents mechanisms that could be included in motor vehicles to warn drivers if there is child in the back seat, when the driver is about to leave the car unattended.

